

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. An absorbent composite comprising a first stratum, a second stratum, and a transition zone therebetween and integrally connecting the first and second strata;

the first stratum comprising hydrophobic fibers and a binder;

the second stratum comprising a binder and fibers selected from the group consisting of hydrophilic fibers, hydrophobic fibers, and mixtures thereof; and

the transition zone comprising fibers from one stratum extending into the other stratum.

2. The composite of Claim 1 wherein fibers of the first stratum extend into the second stratum.

3. The composite of Claim 1 wherein fibers of the second stratum extend into the first stratum.

4. The composite of Claim 1 wherein the first stratum is substantially coextensive with the second stratum.

5. The composite of Claim 1 wherein the transition zone is substantially coextensive with at least one stratum.

6. The composite of Claim 1 wherein the first stratum is substantially homogeneous.

7. The composite of Claim 1 wherein the second stratum is substantially homogeneous.

8. The composite of Claim 1 wherein the first stratum has a pore size greater than the second stratum.

9. The composite of Claim 1 wherein the first stratum has a density in the range from about 0.01 to about 0.3 g/cm³.

10. The composite of Claim 1 wherein the second stratum has a density in the range from about 0.03 to about 0.5 g/cm³.

~~7~~ ~~11~~. The composite of Claim 1 wherein the first stratum has a basis weight in the range from about 10 to about 100 gsm.

~~8~~ ~~12~~. The composite of Claim 1 wherein the second stratum has a basis weight in the range from about 10 to about 500 gsm.

~~9~~ ~~13~~. The composite of Claim 1 wherein the hydrophobic fibers are selected from the group consisting of natural fibers, synthetic fibers, and mixtures thereof.

~~10~~ ~~14~~. The composite of Claim 1 wherein the synthetic fibers are selected from the group consisting of polyethylene terephthalate, polyethylene, polypropylene, nylon, latex, and rayon fibers.

~~11~~ ~~15~~. The composite of Claim 1 wherein the natural fibers are cellulosic fibers selected from the group consisting of cotton, wool, wood pulp, straw, and kenaf fibers.

~~12~~ ~~16~~. The composite of Claim 1 wherein the binder comprises a fibrous binding material.

~~13~~ ~~17~~. The composite of Claim 1 wherein the fibrous binding material comprises bicomponent binding fibers.

~~14~~ ~~18~~. The composite of Claim 1 wherein the binder comprises a wet strength agent.

~~15~~ ~~19~~. The composite of Claim 1 wherein the first stratum comprises fibers having a length from about 0.25 to about 1.5 inches.

~~16~~ ~~20~~. The composite of Claim 1 wherein the first stratum comprises fibers having denier from about 5 to about 20.

~~17~~ ~~21~~. The composite of Claim 1 wherein the first stratum comprises crimped fibers.

~~18~~ ~~22~~. The composite of Claim 1 wherein the crimped fibers have from about 5 to about 15 crimps per inch.

19 23. The composite of Claim 21 wherein the crimped fibers are present in the stratum in an amount from 50 to 100% by weight of total fibers in the stratum.

20 24. The composite of Claim 1 wherein the hydrophilic fibers comprise cellulosic fibers.

21 25. The composite of Claim 1 wherein the hydrophilic fibers comprise crosslinked cellulosic fibers.

22 26. The composite of Claim 1 wherein the hydrophilic fibers comprise chemithermomechanical pulp fibers.

23 27. The composite of Claim 1 wherein the second stratum further comprises a superabsorbent polymeric material.

24 28. The composite of Claim 1 wherein the composite is formed by a foam process.

25 29. The composite of Claim 1 wherein the composite is formed by a wet-laid process.

26 30. The composite of Claim 1 wherein the composite is formed by an air-laid process.

31. An absorbent composite comprising a first stratum, a second stratum, and a transition zone therebetween and integrally connecting the first and second strata;

the first stratum comprising polyethylene terephthalate fibers and bicomponent binding fibers;

the second stratum comprising crosslinked cellulosic fibers and bicomponent fibers; and

the transition zone comprising fibers from one stratum extending into the other stratum.

32. An absorbent composite comprising a first stratum, a second stratum, and a transition zone therebetween and integrally connecting the first and second strata;

the first stratum comprising polyethylene terephthalate fibers and bicomponent binding fibers;

the second stratum comprising crosslinked cellulosic fibers and a wet strength agent; and

the transition zone comprising fibers from one stratum extending into the other stratum.

33. An absorbent composite comprising a first foam-formed stratum, a second foam-formed stratum, and a transition zone therebetween and integrally connecting the first and second strata;

the first foam-formed stratum comprising hydrophobic fibers and a binder;

the second foam-formed stratum comprising hydrophilic fibers and a binder;

and

the transition zone comprising fibers extending from one stratum extending into the other stratum.

34. An absorbent article comprising an absorbent composite comprising a first stratum, a second stratum, and a transition zone therebetween and integrally connecting the first and second strata;

the first stratum comprising hydrophobic fibers and a binder;

the second stratum comprising a binder and fibers selected from the group consisting of hydrophilic fibers, hydrophobic fibers, and mixtures thereof; and

the transition zone comprising fibers from one stratum extending into the other stratum.

35. An absorbent article comprising:

(a) a liquid pervious topsheet;

(b) an absorbent composite comprising a first stratum, a second stratum, and a transition zone therebetween and integrally connecting the first and second strata;

the first stratum comprising hydrophobic fibers and a binder;

the second stratum comprising a binder and fibers selected from the group consisting of hydrophilic fibers, hydrophobic fibers, and mixtures thereof; and

the transition zone comprising fibers from one stratum extending into the other stratum; and

(c) a liquid impervious backsheet.

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37. An absorbent article comprising:
- (a) a liquid pervious topsheet;
 - (b) an absorbent composite comprising a first stratum, a second stratum, and a transition zone therebetween and integrally connecting the first and second strata;

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38. The absorbent article of Claim 37 wherein the intermediate stratum comprises a liquid pervious tissue.

39. The absorbent article of Claim 37 wherein the intermediate stratum comprises a distribution stratum.

40. The absorbent article of Claim 39 wherein the distribution stratum comprises hydrophilic fibers and a binder.

41. The absorbent article of Claim 40 wherein the hydrophilic fibers comprise crosslinked cellulosic fibers.

42. The absorbent article of Claim 41 wherein the crosslinked cellulosic fibers comprise crosslinked eucalyptus fibers.

43. The absorbent article of Claim 39 wherein the distribution stratum further comprises superabsorbent polymeric material.

44. The absorbent article of Claim 35 wherein the article is a feminine care product.

45. The absorbent article of Claim 36 wherein the article is a diaper.

46. The absorbent article of Claim 38 wherein the article is an incontinence product.

47. The absorbent article of Claim 39 wherein the article is a diaper.

48. A method for forming a unitary stratified composite comprising the steps of:

- 1 combining hydrophobic fibers and a binder to provide a first fibrous mixture;
- 2 combining a binder and fibers selected from the group consisting of hydrophilic fibers, hydrophobic fibers, and mixtures thereof to provide a second fibrous mixture;
- 3 depositing the first fibrous mixture on a foraminous support;
- 4 depositing the second fibrous mixture on the first fibrous mixture on the foraminous support to provide a stratified fibrous composite, wherein the deposition of the second fibrous mixture results in some mixing of the fibers of the first fibrous mixture and the fibers of the second fibrous mixture; and
- 5 heating the stratified fibrous composite to effect thermal bonding between the fibers and binder to provide a unitary stratified composite.

49. The method of Claim 48 wherein the first fibrous mixture is an aqueous slurry.

50. The method of Claim 48 wherein the second fibrous mixture is an aqueous slurry.

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51. The method of Claim 49 further comprising the step of removing water from the stratified fibrous composite.

52. The method of Claim 48 wherein the hydrophobic fibers are synthetic fibers are selected from the group consisting of polyethylene terephthalate, polyethylene, polypropylene, nylon, latex, and rayon fibers.

53. The method of Claim 48 wherein the hydrophilic fibers are cellulosic fibers.

54. The method of Claim 53 wherein the cellulosic fibers are crosslinked cellulosic fibers.

55. The method of Claim 48 wherein the binder is a multicomponent binding fiber.

56. The method of Claim 48 wherein the first fibrous mixture and the second fibrous mixture are deposited on the foraminous support substantially simultaneously.

57. The method of Claim 48 wherein the first fibrous mixture is deposited by an offset headbox.

58. The method of Claim 48 wherein the second fibrous mixture is deposited by an offset headbox.

59. The method of Claim 48 wherein the foraminous support is a forming wire.

60. The method of Claim 48 wherein the mixing of the fibers of first and second fibrous mixtures is enhanced through the application of vacuum to the foraminous support.

61. A method for forming a unitary stratified composite comprising the steps of:

combining hydrophobic fibers and a binder to provide a first fibrous mixture;

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depositing the second fibrous mixture on a foraminous support;

heating the stratified fibrous composite to effect thermal bonding between the fibers and binder to provide a unitary stratified composite.